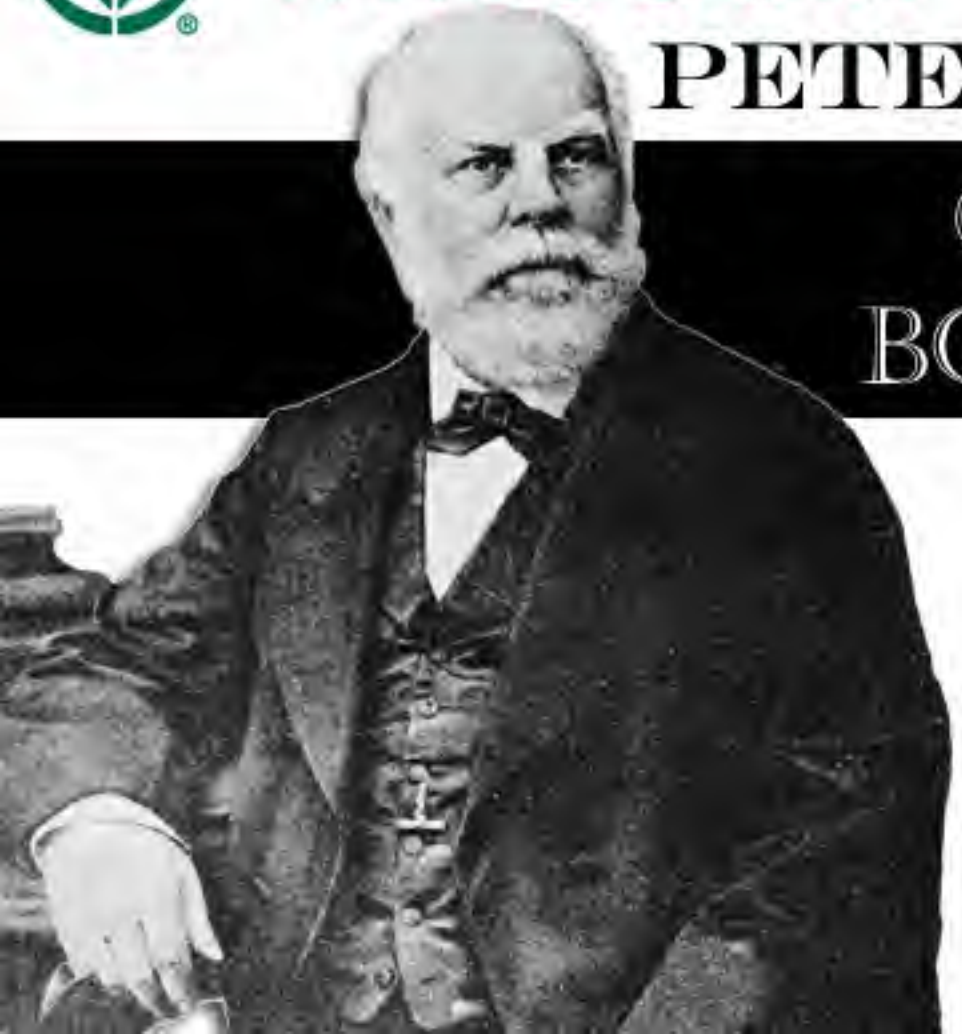
# Missouri Botanical Garden
## Peter H. Raven Library

# George Engelmann Botanical Notebooks

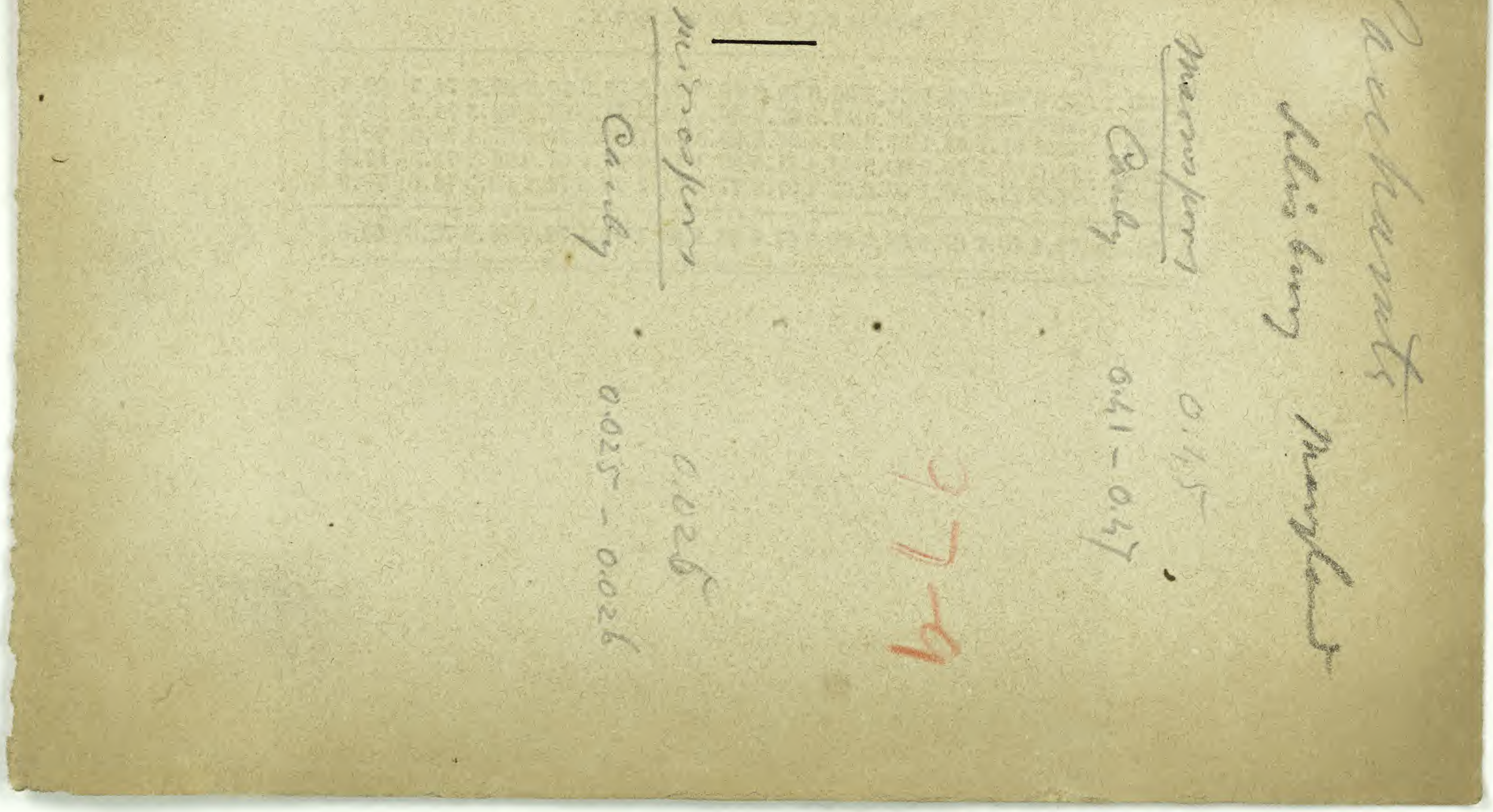


*Pagination Note:*
*Since many of the items lack a specific page number, the page number displayed online refers to the sequentially created number each item was given upon cataloging the materials.*

identical with, *P. acuta*, Hall. It has the same form and arrangement of the cells, with the exception of the cells being as large on the outside as on the middle rows. It differs, moreover, in the edges of the branches not being acute but rounded, but above all by the existence of a central lammella or plate which separates the opposite and less flattened portions of the bryozoum.

*Geol. Pos. & Loc.*—Upper Silurian, Columbus, Ohio.—[*Illinois State Collection.*]

---



cm 0 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

| YEAR. | JA | FH | M | A | M | J | J | A | S | O | N | D | YEAR. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1861... | 32.2 | 40.4 | 44.8 | 58.1 | 64.1 | 76.9 | 77.5 | 78.6 | 69.1 | 57.9 | 46.0 | 39.7 | 57.1 |
| 1862... | 28.9 | 30.2 | 43.2 | 55.0 | 69.7 | 75.1 | 81.2 | 80.7 | 72.1 | 57.3 | 42.6 | 41.3 | 56.4 |
| 1863... | 36.8 | 35.7 | 43.6 | 57.4 | 65.5 | 71.9 | 77.2 | 77.5 | 69.2 | 48.0 | 43.7 | 35.9 | 55.2 |
| 1864... | 29.2 | 38.3 | 40.7 | 51.4 | 69.4 | 78.9 | 83.5 | 78.8 | 72.9 | 53.1 | 44.9 | 30.4 | 56.0 |
| 1865... | 28.1 | 38.4 | 46.7 | 56.8 | 68.8 | 80.7 | 77.7 | 78.1 | 77.8 | 58.8 | 48.0 | 30.8 | 57.5 |
| Mean | 31.0 | 36.6 | 43.8 | 55.7 | 67.5 | 76.7 | 79.4 | 78.7 | 72.2 | 57.0 | 45.0 | 35.6 | 56.4 |

## RELATIVE HUMIDITY.

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1861... | 72.2 | 63.3 | 64.5 | 61.5 | 66.3 | 70.8 | 66.3 | 69.6 | 77.3 | 76.6 | 69.0 | 74.3 | 69.5 |
| 1862... | 85.3 | 73.9 | 70.8 | 67.0 | 57.3 | 67.0 | 66.8 | 64.3 | 74.2 | 67.2 | 69.5 | 74.6 | 69.8 |
| 1863... | 79.2 | 81.7 | 68.1 | 57.2 | 59.4 | 67.7 | 68.6 | 70.7 | 68.2 | 74.4 | 67.4 | 79.5 | 70.2 |
| 1864... | 75.6 | 62.7 | 70.0 | 69.8 | 56.4 | 61.5 | 62.8 | 69.0 | 64.1 | 67.9 | 74.2 | 75.5 | 67.4 |
| 1865... | 74.6 | 72.0 | 66.1 | 66.8 | 62.1 | 67.9 | 77.4 | 71.7 | 76.8 | 74.1 | 62.3 | 78.8 | 70.9 |
| Mean | 77.4 | 70.7 | 67.9 | 64.5 | 60.3 | 67.0 | 68.4 | 69.1 | 72.1 | 72.0 | 68.5 | 76.5 | 69.6 |

13733

MISSOURI BOTANICAL GARDEN
7 8 9 10
0 1 2 3 4 5 6 cm
copyright reserved

Leaf with a great many stomata ×280

Sections of leaf ×10

Isoetes saccharata
Miramichi River, Canby
Sept 14 & 15 1866

horizontal Section ×2

another horizontal Section ×2

×2

papillae ×150

10–15 green leaves
2–2½ inches long

×4 1/5

0,025–0,026 mm

Diameter of spores ×60
24,5 – 22.5 mm
60

0.41 – 0.47 mm average 0.45 mm

outer leaf ×2

inner leaf

13734

# ALEX. LEITCH,

## APOTHECARY & PHARMACEUTIST,

Marble Building Cor. Fourth & Olive Sts. St Louis, Mo.

0 cm 1 2 3 4 5 6 7 8 9 10
Copyright reserved
MISSOURI BOTANICAL GARDEN

Isoetes saccharata
belongs to the tidal mud flora.
It is associated with Endravalon
Elatine Sagittaria pusilla, Fillaea simplex,
Herpestis Monniera
Wm M Canby – Cliff. Nov 27 1866

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

13735

**ENNO SANDER & CO.,**

# PHARMACEUTISTS,

Cor. 4th & Walnut, under Southern Hotel,

Cor. 2d & Walnut, under Barnum's Hotel,

ST. LOUIS, MO.

---

℞ Lin volat Camph.
Chloroform aa 3ij

S. saccharata

Banks of Wicomico River in fresh water, but influenced by the tide one mile below the town of Salisbury (which is at the head of tidewater) and 21 or 23 above the mouth of the River into the Chesapeak bay.

13736

ALEX. LEITCH

APOTHECARY & PHARMACEUTIST

COR. 4TH & OLIVE STS. ST. LOUIS

Missouri Botanical Garden
copyright reserved

I don't find any Asters (ripari, Læve lanei, vilis or radicans) in pure sand, or pure gravel. They always grow in mud which is deposited on gravel beds either by the tide (ripari and radicans) or by rains which wash it down (Lævis & vilis)

Wm M Canby - Cliff. Oct 12 1866

first discovered by Canby - Sept 1865

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

13737

# M. KOVÁCS,

# -APOTHECARY-

Franklin Avenue, bet. 18th & 19th Streets,

ST. LOUIS, MO.

cm 0 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

Isoetes Saccharata

In fresh water on the banks of the Wicomico River, one mile below Salisbury, Md. up to which the influence of the tide extends, and 21 or 22 miles below the mouth of the river, where it empties into Chesapeake Bay.

Wm M. Canby & Cliff. Oct 12 1866

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

13738

# M. KOVÁCS,

# -APOTHECARY-

Franklin Avenue, bet. 18th & 19th Streets,

ST. LOUIS, MO.

cm 0 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

Rhodes serbanta — parula

subnuse sau amplibi, sonde virens v. stipes.

Bunu bibbo depressum

folis (  ) subtetis, petulo recurvi, stip

placis, cup rotundatis

sporgis obsolete oblongis, vela angustissima,

vix reagis tectis

racrospis tenuibus valde sechare compositis

dentes. —

On the muddy bank of Wicomico River Chesapeake

1 mile below the town of Salisbury tidewaters

shore of Maryland / Cattle bank of the Chesapeake Bay

with Pillea simplex. Hemianthus micranthemoides Sagittaria simplex &c

Com. M. Canby Sept 1st 1863 — The smallest of the

Spartes; leaves upon wilts leaves,

culm. Cobs — with numerous stomata; the stipes

18739

**Alex. Leitch.**
APOTHECARY & CHEMIST,
Cor. 4th & Olive Sts., St. Louis.

trunks flattened down
– the longer sides
– the shorter do – high

Spindles of spurs reduced to delicate
warts, only ... mm high.

The smallest Amicia Zygata, attended
better I. echinospora, with which it has the
narrow valves – rows, and J. Brasi-
the habit of which it represents; & to get
the smaller specimens of
for either by the small flattened trunks, &
the ~~confusion~~ warts of the specimens;
I smell the either.

see Curtis's Letter of Sept 22. 1866

Isoetes Saccharata  Febr 18 1870

Maryland  Wm M Canby leg 1869

11.5 – 12 / 415 = 0.027 – 0.028 (0.024 mm formerly papillose ?

cristati ? or with a loose membrane !

stomate !  no basal bands

brown cells abundant in sporing !-

(nearly unspotted (formerly)



25.5 – 32.5, mostly 27 – 28 mm.

60

macrospores 0.42 – 0.53 mm

mostly 0.45 – 0.47

0.40 – 0.44 mm formerly

surface of macrospore

edge

× 150

× 2

velum massive

microsporangium

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

# M. W. ALEXANDER,

13740

SOUTH-EAST CORNER FOURTH AND MARKET STREETS,

ST. LOUIS.

cm 0 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

| YEAR | 6 A.M. | 9 A. | 12 M. | 3 P.M. | 6 P.M. | 9 P.M. | OF MONTH. |
|---|---|---|---|---|---|---|---|
| 1861 | ..... | ..... | ..... | ..... | ..... | ..... | 72.2 |
| 1862 | 91.5 | 87.5 | 78.5 | 79.0 | 85.2 | 90.0 | 85.3 |
| 1863 | 94.1 | 83.9 | 75.0 | 71.9 | 79.3 | 86.0 | 81.7 |
| 1864 | 90.8 | 79.3 | 65.9 | 62.7 | 75.4 | 79.8 | 75.6 |
| 1865 | 89.3 | 77.5 | 64.3 | 62.8 | 73.7 | 79 9 | 74.6 |
| 1866 | 87.1 | 77.1 | 67.2 | 65.3 | 74.6 | 79.1 | 75.1 |
| Mean | 90.6 | 81.1 | 70.2 | 68.3 | 77.6 | 82.9 | 77.4 |

FEBRUARY.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1861 | ..... | ..... | ..... | ..... | ..... | ..... | 63.3 |
| 1862 | 89.1 | 79.2 | 65.8 | 61.5 | 72.2 | 75.5 | 73.9 |
| 1863 | 94.1 | 83.9 | 75.0 | 71.9 | 79.3 | 86.0 | 81.7 |
| 1864 | 79.0 | 65.0 | 53.5 | 49.0 | 59.9 | 70.0 | 62.7 |
| 1865 | 86.2 | 73.8 | 63.7 | 60.8 | 70.8 | 76.7 | 72.0 |
| 1866 | 85.3 | 70.8 | 62.9 | 59.5 | 68.6 | 76.5 | 70.6 |
| Mean | 86.8 | 74.5 | 64.2 | 60.5 | 70.2 | 76.9 | 70.7 |

Errata. In the last No. of *Journal*, on page 70, line 6, for the word "*destination*" read *declination*.

0 1 2 3 4 5 6 7 8 9 10 cm
copyright reserved
MISSOURI BOTANICAL GARDEN

13741

hindered, so in birds, wh[illegible] breeding season ends, and the sexual organs pass gradually into their periodic atrophy, at once the plumage begins to assume the pale and more sober colors, which characterizes the barrenness of winter." He next refers to certain interesting specimens presented to the museum by Sir Philip Egerton, showing the interesting fact, "that if a buck be castrated while his antlers are still covered with velt, their growth is checked, they remain as if truncated, and irregular nodules of bone project from their surfaces." "The fact is not, hitherto, explained; it is inexplicable, by believing that the materials which, in the formation of these organs of external sexual character, are removed from the blood, leave or maintain the blood in the state necessary for the further development, growth and active function of the proper sexual or reproductive organs." "The concurrent development of the thymus gland and air breathing organs during the body's growth of the thyroid gland and the brain, (instances

MISSOURI BOTANICAL GARDEN
copyright reserved
0 1 2 3 4 5 6 7 8 9 10 cm

A. Braun in Litt. Febr 1867

Distichagenetum

Isoetes Bolanderi Engl.
(the larger)

foliorum epidermis stomatibus
scatens
folia pallide v. laete viridia
versus attenuata, tenuia
sine fasciculis peripheriis
(vel cum 1/3 – 1/2 sporangiorum
fasciculis)
spori levissime rugulosi
rugis tortuis, vix
anastomosantibus

Isoetes Nuttallii A. Br.
var. stolonifera

atroviridia, abrupte
adapicem attenuata, rigidiora
cum fasc. peripheriis
(angustissimis)
nec
majora. levissime
tuberculata, ~~vix~~
tuberculis vix in
rugas elongatis.

sporangium vidi vellosi reticulo chromatophoro

1874

ALEX. LEITH

APOTHECARY & PHARMACEUTIST

COR. 4TH & OLIVE STS. ST. LOUIS

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

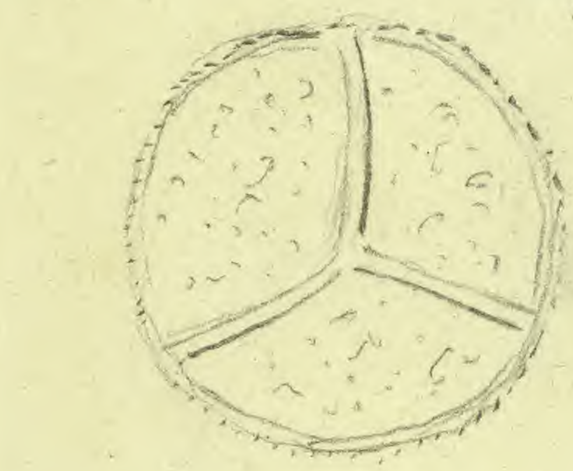
Isoetes Californica var pygmaea Jan 5 1867

No. 6025 Monterey in very deep water, eastern slope of Sierra 7000 feet high

+ Bolander

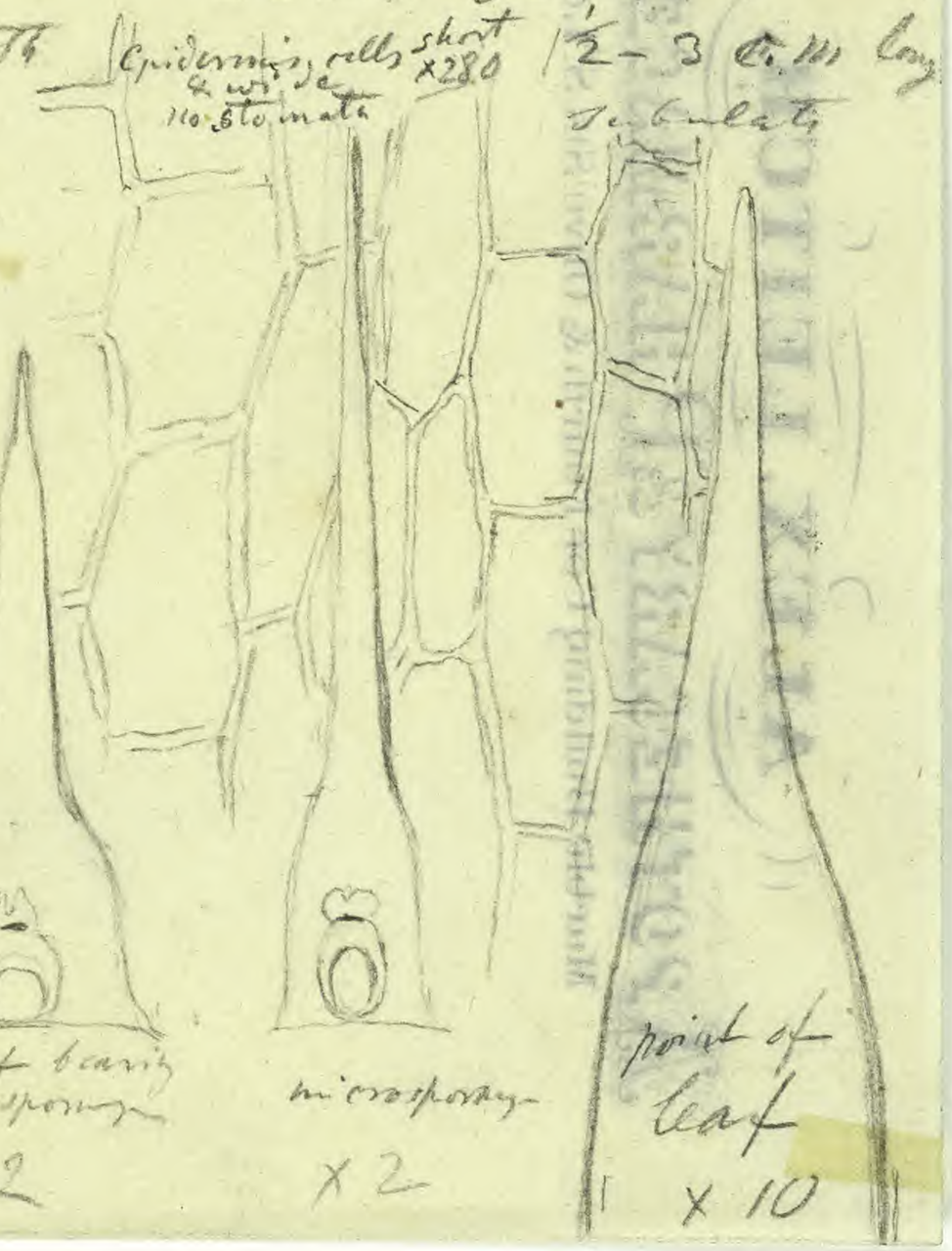
23–28 / 60 0.38–0.47 mm diam of macrospores

leaves 8–12



x60

macrospores smooth or with very small warts or spinules



not fully mature

10–12 / 415 = 0.024–0.029

showing cells x 280

x 2

x 2

x 10

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

13743

# ALEX. LEITCH.

## APOTHECARY & PHARMACEUTIST.

Marble Building Cor. Fourth & Olive Sts. St. Louis, Mo.

cm 0 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

I. ~~California~~ pygmaea

May 18 1867

×150

surface of upper segments

edge

lower Hemisphere

MISSOURI BOTANICAL GARDEN
copyright reserved

13744

# Alex. Leitch,

## APOTHECARY & CHEMIST,

Cor 4th & Olive Sts. St. Louis.

0 cm 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

6025—
H Bolander
Sept 1866

# Isoetes pygmaea

Jan 26 1874.

in deep running water, monotrail, Eastern slope of the Sierra Nevada in large pools & mud, running ground 7000'

5–10 leaves 6–12 lines

diam. macrospores ×60

$\frac{23-27.6}{60} = 0.38-0.49$ mm

mostly 0.43

$\frac{10-11}{415}$

microspores ×415

Almost smooth

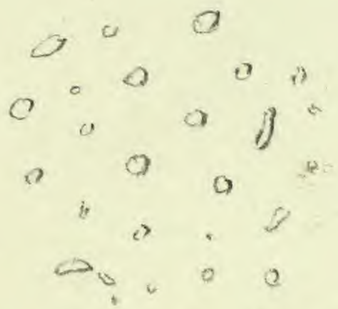
0.024 —0.027 mm

epidermal cells ×280

×60

×30

whole leaf ×2



surface ×150

another leaf or part of leaf

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN

13745

# Deutsche Apotheke.

## HENRY DIERS,

## APOTHECARY,

South East Corner Fifth aud Biddle Streets,

**ST. LOUIS. MO,**

0 cm 1 2 3 4 5 6 7 8 9 10
copyright reserved
MISSOURI BOTANICAL GARDEN

Febr 1st 1872

The two other western Sierra Isoetes, thus far known, may be ~~distinguished~~ characterized as follows

Isoetes pygmaea — submerged ✓ trunk, bilobed, leaves (5–10, ½–1 inch long) 4 angled, stout, erect rather abruptly pointed, deep green, epidermis obscure short, even square, no stomata, no peripheral bast bundles; sporocarp ovular, coved scarcely ¼ with a narrow velum, unspotted; macrospores 0.36 – 0.50 mm diam. marked with smaller and more regular, very rarely confluent rather sharp points, microspores (0.024–0.027) brown very minutely papillose or almost smooth.

In (large patches in mud, over gravel in running water, deeply submerged) on the Monstrat, eastern declivity of the Sierra Nevada, 7000' alt., W. Bolander 1866 — Very peculiar stunted form, well characterized by its short stout deep green leaves is closely allied to I. lacustris, though very different in the form of the spores. The cells of the epidermis distinguish it at once from all our American species, being never more than 3 times as long as they are wide, and often as wide as long, and much less regularly arranged in longitudinal rows; leaves ½–⅔ line diameter, with wide air tubes and thin walls and partitions disepiments,

13746

0 1 2 3 4 5 6 7 8 9 10
cm
copyright reserved
MISSOURI BOTANICAL GARDEN